Fillol
Antoine

CML TP n°7

Groupe D

n° 1 page - 19 :

- $f(x) = 5x^2 - 5$ $\quad Df = \mathbb{R}$

$F(x) = \frac{5x^3}{3} - 5x + cte \quad DF = \mathbb{R}$

- $g(x) = \sin(2x-3) + \frac{2}{x} \quad Df = \mathbb{R}^*$

$G(x) = -\frac{1}{2}\cos(2x-3) + 2\ln(|x|) + cte \quad DG = \mathbb{R}^*$

- $h(x) = 2e^{5x-3} + 3x - 2 \quad Dh = \mathbb{R}$

$H(x) = \frac{2}{5}e^{5x-3} + \frac{3x^2}{2} - 2x + cte \quad DH = \mathbb{R}$

- $m(t) = 2\cos(t) - 8\sin(t) \quad Dm = \mathbb{R}$

$M(t) = 2\sin(t) + 8\cos(t) + cte \quad DM = \mathbb{R}$

- $n(t) = 3t^2 - 5t + 2 \quad Dn = \mathbb{R}$

$N(t) = t^3 - \frac{5}{2}t^2 + 2t + cte \quad DN = \mathbb{R}$

- $p(t) = \frac{-3}{2t+1} \quad Dp = \mathbb{R} / \{\frac{-1}{2}\}$

$P(t) = \frac{-3}{2} \times \ln(|2t+1|) + cte \quad DP = \mathbb{R} / \{\frac{-1}{2}\}$

- $q(x) = e^{-5x+2} + 8x \quad Dq = \mathbb{R}$

$Q(x) = -\frac{1}{5}e^{-5x+2} + 4x^2 + cte \quad DQ = \mathbb{R}$

- $a(y) = 2y^5 - 1 \qquad D_a = \mathbb{R}$

$R(y) = \frac{1}{3}y^6 - y + cte \qquad D_R = \mathbb{R}$

- $h(\theta) = 3\cos(-2\theta + 5) \qquad D_h = \mathbb{R}$

$H(\theta) = \frac{-3}{2}\sin(2\theta + 5) + cte \qquad D_H = \mathbb{R}$

n°2 page - 19 :

- $I = \int_{-5}^{5} (4x^2 - 3)\,dx = \left[\frac{4}{3}x^3 - 3x\right]_{-5}^{5}$

$= \frac{4(5)^3}{3} - 15 - \left(\frac{4(-5)^3}{3} + 15\right)$

$\simeq 303{,}33 \ uA$

- $j = \int_0^7 \sin(2t)\,dt = \left[-\frac{1}{2}\cos(2t)\right]_0^7$

$= \left(\frac{-1}{2}\cos(14) + \frac{1}{2}\cos(0)\right)$

$= \frac{-1}{2}\cos(14) + \frac{1}{2}$

$\simeq 0{,}43 \ uA$

- $h = \int_1^3 (2e^{2x} - 3x)\,dx = \left[e^{2x} - \frac{3}{2}x^2\right]_1^3$

$= e^6 - \frac{27}{2} - \left(e^2 - \frac{3}{2}\right) = e^6 - e^2 - \frac{24}{2}$

$= e^6 - e^2 - 12 \simeq 384 \ uA$

213

- $L = \int_{-1}^{3} (5t-4)\,dt = \left[\frac{5}{2}t^2 - 4t\right]_{-1}^{3}$

$= \frac{45}{2} - 12 - \left(\frac{5}{2} + 4\right) = 20 - 16 = 4$ uA

- $M = \int_{1}^{3} \theta^2\,dx = \left[\theta^2 x\right]_{1}^{3} = 3\theta^2 - \theta^2 = 2\theta^2$

$= 20^2 \times$ uA

- $N = \int_{-1}^{3} (3\cos(5\theta))\,d\theta = \left[\frac{3}{5}\sin(5\theta)\right]_{-1}^{3}$

$= \frac{3}{5}\sin(15) + \frac{3}{5}\sin(5) = \frac{3}{5}(\sin(15) + \sin(5))$

$\simeq 0,207$ uA

- $P = \int_{0}^{0,01} 2\sin(314\theta)\,d\theta = 2\left[-\frac{1}{314}\cos(314\theta)\right]_{0}^{0,01}$

$= -\frac{1}{157}(\cos(3,14) - 1)$ uA

- $Q = \int_{1}^{2} \frac{2}{3x+2}\,dx = \left[\frac{2}{3}\ln(13x+21)\right]_{1}^{2}$

$= \frac{2}{3}\ln(8) - \frac{2}{3}\ln(5) = \frac{2}{3}(\ln(8) - \ln(5))$

$= \frac{2}{3}\ln\left(\frac{8}{5}\right) = \frac{2}{3}\ln(1,6) = \ln\left(\sqrt[3]{\left(\frac{8}{5}\right)^2}\right)$ uA